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Alberta Energy

Annual Report

1990 – 1991



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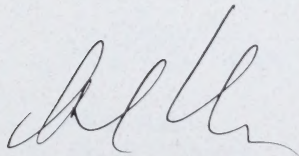
June 30, 1992

The Honourable Dr. David Carter
Speaker of the Legislative Assembly
Province of Alberta

Mr. Speaker:

I have the honour to submit the Annual Report of Alberta Energy for the fiscal year ended March 31, 1991.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Rick Orman', with a stylized, cursive script.

Rick Orman
Minister of Energy

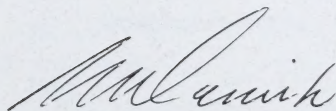
June 30, 1992

The Honourable Rick Orman
Minister
Alberta Energy

Dear Minister:

It is my pleasure to submit to you Alberta Energy's Annual Report for the fiscal year 1990-91. The report contains a summary of department activities, revenues and expenditures for the year.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'M. F. Kanik', with a stylized, flowing script.

M. F. Kanik
Deputy Minister

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Minister's Message

Alberta's energy sector worked with dedication throughout the 1990-91 fiscal year to meet the challenges of volatile prices and environmental protection. The sector responded to both the Persian Gulf crisis and the continuing focus on energy and the environment with innovative and cooperative approaches.

The year began quietly with a crude oil outlook of flat prices and modest activity. Then Iraq invaded Kuwait on August 2, 1990, causing tremendous uncertainty for the international oil markets. While overall oil prices were higher than forecasted, the increase masked enormous volatility. Price swings of \$2 to \$5 in a single day were common during this uncertain period before OPEC members and other oil-producing countries had a chance to build up their inventories.

Throughout the crisis, energy ministers and their departments from across Canada worked closely to coordinate planning efforts so we would be ready to respond effectively in the event of any disruption to oil supply. As one of the 21-member nations of the International Energy Agency, Canada is committed to working cooperatively with other nations to help alleviate the effects of world oil supply shortages.

On January 11, I announced that the Government of Alberta would work closely with other provinces and the federal government in implementing petroleum demand restraint measures. Alberta's efforts included the introduction of the Energywise program, which promoted voluntary measures to reduce petroleum consumption.

At the retail level, the Persian Gulf crisis spurred an increase in gasoline prices, causing many Albertans to question how gasoline is marketed in the province as well as the fairness of prices. I established the Gasoline Consumers' Information Committee, comprised of representatives from the Alberta Motor Association, the Alberta Branch of the Consumers' Association of Canada and the Petroleum Resources Communication Foundation, to address these concerns and report back to Albertans.

With the quick success of the Allied Forces' military offensive in January 1991, oil prices dropped \$10 per barrel in one 24-hour period, the largest single decline ever recorded.

Nonetheless, the period of increased prices had significant implications for Alberta's energy revenues. In 1990-91, total energy resource revenue rose 14.6 per cent to just over \$3 billion from the previous fiscal year.

Although synthetic crude and bitumen prices fluctuated significantly during the year, private sector interest in Alberta's oil sands remained strong. The government announced an agreement-in-principle to allow Syncrude Canada Ltd. to upgrade bitumen from a source other than Syncrude leases. Another agreement-in-principle was reached with Amoco for commercial development of the Soars Lake oil sands project in the Cold Lake region of northeastern Alberta.

Natural gas prices remained soft throughout the fiscal year. While the volume of gas exported by Alberta increased, Canadian domestic and intra-Alberta sales declined.

One of the main barriers to increased exports of Alberta natural gas to the United States is lack of sufficient pipeline capacity. For this reason, the Alberta Government participated in regulatory hearings during the year in Canada and the U.S. to vigorously support expansion of the TransCanada PipeLine system and the associated Iroquois natural gas pipeline project. The private-sector project proposes to transport 576 million cubic feet per day of Alberta natural gas to the U.S. northeast market.

When oil prices diverged sharply from natural gas prices during the Persian Gulf crisis, a temporary Alberta Royalty Tax Credit (ARTC) supplement was introduced for 1991. This made the ARTC rate for natural gas production equal to 70 per cent for producers with less than \$2.5 million in oil royalty.

Changes in the relationships between natural gas producers and buyers continued during the year, largely the result of the ongoing process of market deregulation which began in 1985. The Government of Alberta remains committed to deregulation and to a functional market which is fair to both consumers and producers.

As a result of this process, sales of Alberta gas to California took place under increasingly difficult circumstances. Regulatory changes by the California Public Utilities Commission (CPUC) were of particular concern to producers and the Government of Alberta. The changes had the effect of reducing gas takes under existing long-term contracts by encouraging non-core customers in California to buy gas directly from producers.

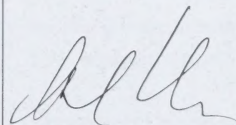
The environmental effects of energy continued to be a major concern during the year. In April 1990, I had the honour of hosting a special meeting of federal, provincial and territorial energy ministers at Kananaskis to discuss issues related to energy and the environment, most notably global climatic change. In February 1991, I signed the Western Accord on Environmental Co-operation with the four western provinces and two territories to ensure a consistent approach to overlapping national and regional environmental issues.

The Clean Air Strategy for Alberta, a joint initiative by the departments of Energy and Environment, was launched in 1990. The objectives of this initiative are to identify issues through public consultation, develop practical solutions and make policy recommendations to the Alberta Government on ways to improve air quality.


In October 1990, in recognition of the impacts of the energy production on the environment, I was pleased to announce the formation of the Environmental Affairs Branch in my department, dedicated to reviewing and developing energy-related environmental policy.

During the past year, the department was also active in supporting the investigation of environmentally friendly alternative energy forms, such as wind and solar power, through programs like the Southwest Alberta Renewable Energy Initiative.

As Minister of Energy, I commend the many individuals and organizations, both in and outside of government, for their hard work and dedication during this challenging year. Their commitment and continuing adaptability will ensure that Alberta remains competitive on the world scene as Canada's energy province.



Rick Orman
Minister



Alberta Energy Structure

The Alberta Department of Energy has four basic functions: it grants mineral rights and administers mineral agreements on behalf of the Province; it provides policy recommendations and advice on energy to the government; it advises on and administers the fiscal regimes and royalty systems through which the people of Alberta, the resource owners, receive fair return on their resources; and it administers energy-related research, development and conservation programs.

In addition to the department, the Minister of Energy has responsibility for five reporting boards and agencies:

- Alberta Oil Sands Equity
- The Alberta Petroleum Marketing Commission
- Alberta Oil Sands Technology and Research Authority
- Board of Directors of the Alberta Office of Renewable Energy Technology
- The Public Utilities Board.

The Energy Resources Conservation Board reports to Executive Council through the Minister of Energy.

Structural changes made in the department in 1989-90 were consolidated in 1990-91. The department is divided into five divisions, including Finance and Administration which also serves Alberta Forestry, Lands and Wildlife. In addition to the five divisions, the department's organizational structure includes the Communications Branch and Legal Services, both reporting to the Deputy Minister.

Mineral Resources Division

This division is responsible for developing and administering energy and other mineral leasing policies to optimize Alberta's mineral supply and the province's corresponding economic, environmental, and employment interests. The division ensures that the Alberta Geological Survey effectively and efficiently supports provincial geological requirements. It consults with other governments on leasing-related and geological survey policies and administrative practices.

Mineral Revenues Division

This division is responsible for the management of programs established to generate and collect mineral revenues and for providing the assurance that these programs are consistent with provincial policies and the business environment. It manages a number of incentive programs that enhance exploration for minerals in Alberta and their extraction.

Markets, Supply and Industry Analysis Division

This division consists of three branches: Markets and Regulatory Policy, Supply and Royalty Policy, and Electricity Policy. The responsibilities of the Revenue Forecasts and Industry Analysis Branch were redistributed among the other branches in the fall of 1990.

The division provides detailed assessments of Alberta's energy industry and factors that may improve or impede the development of the industry in the future. It makes recommendations on policy directions for Alberta concerning the regulatory aspects of the energy industries and the fiscal regime for the province's oil, gas and coal resources.

Sustainable Energy Development Division

This division was formed in 1989 to ensure the sustainable development of Alberta's energy resources. It provides policy advice and administers programs concerning energy efficiency and environmental affairs that affect energy production and use.

The division undertakes analysis and provides policy advice concerning development of non-conventional resources, including oil sands and renewable energy. It provides advice on research and technology and administers programs involving coal, hydrogen and renewable energy. The division has extensive liaison with other Alberta Government departments and agencies and with industry, non-governmental organizations and consumers.

The Environmental Affairs Branch was formed during the fiscal year to review and develop energy-related environmental policy in partnership with the energy industry. This policy will guide the department in achieving environmentally-responsible and socially-responsible development of Alberta's energy resources.

Communications

The Communications Branch provides an array of services to help ensure that the general public is kept informed of the department's activities and responsibilities. The branch prepares written material for release to the news media and is responsible for advertising, production of publications and development of displays. The branch provides writing and editing services and coordinates printing, graphic design and photography services.

In cooperation with divisional staff, the branch develops and implements public awareness campaigns and responds to enquiries from the media.

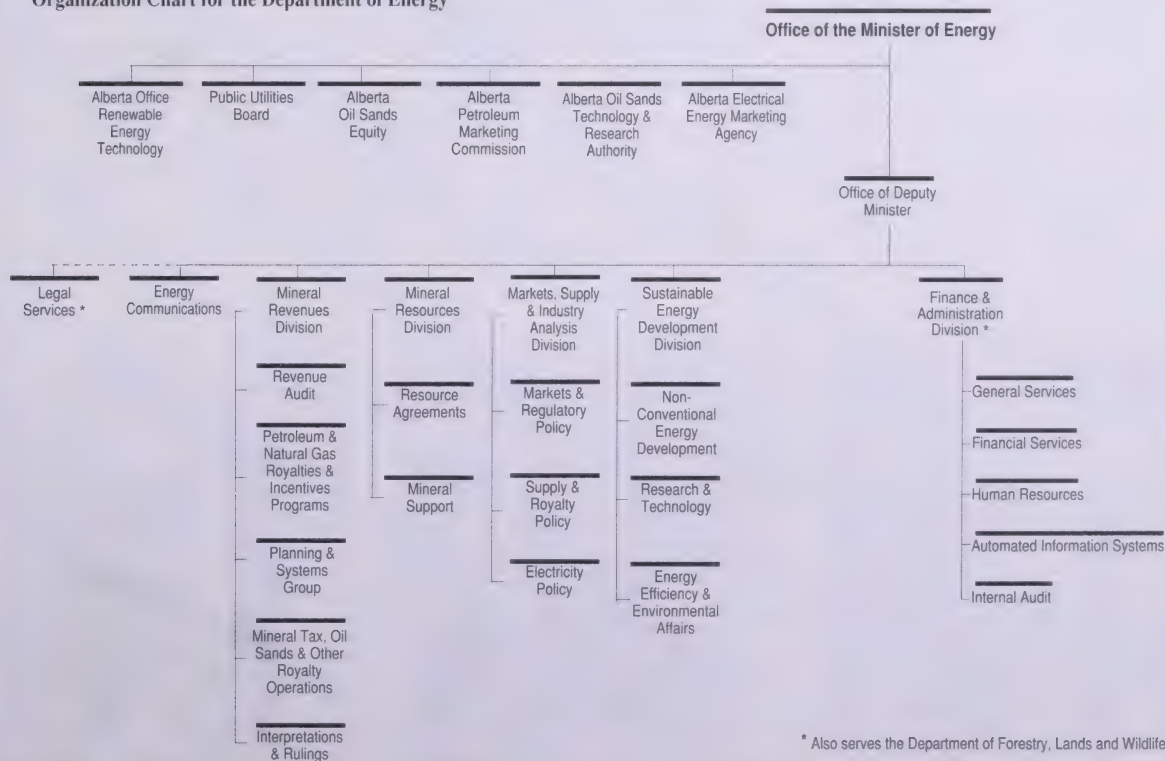
Finance and Administration Division

This division provides services to the departments of Energy and Forestry, Lands and Wildlife in the areas of financial services, automated systems, general services, human resources and internal audit.

Legal Services

This division provides legal advice and assistance on all matters pertaining to energy. It also serves the Department of Forestry, Lands and Wildlife.

Figure 1
Organization Chart for the Department of Energy



* Also serves the Department of Forestry, Lands and Wildlife

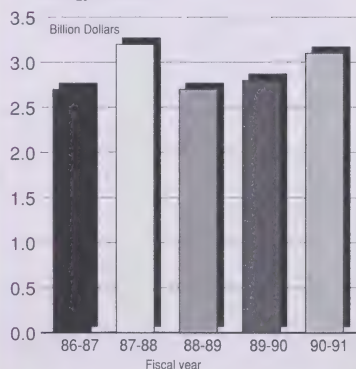


Revenues

Energy Revenue

Crown revenue in 1990-91 from all mineral resources was derived mainly from royalties and sales of Crown agreements. Total revenues were \$3.06 billion, compared to \$2.67 billion in 1989-90. (See Figure 2) A significant portion of the gain in revenues was generated from higher oil prices during the Persian Gulf crisis. Along with this rise in oil prices, the price for gas liquids also increased.

Figure 2
Energy Revenue



Crude Oil Royalties

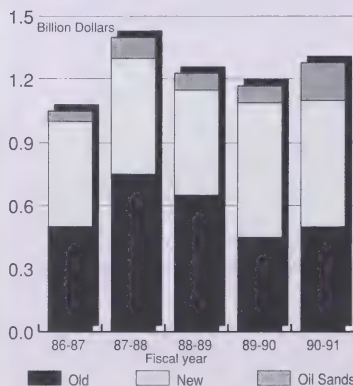
Gross Crown Royalty Share

The volume of Crown conventional crude oil produced in 1990-91 was 278.1 million barrels, a decline of 10 million barrels from 1989-90. The gross Crown royalty share represented 24.3 per cent of the volumes produced during the fiscal year. New Oil (oil produced after 1974) represented 72.2 per cent of Crown volumes produced.

Net Royalty Volumes and Revenue

The Crown royalty share, net of Enhanced Oil Recovery relief and the Crude Oil Royalty Holiday Program which encourages exploration oil well drilling, totalled 18.6 per cent, a volume of 51.85 million barrels. Net royalty revenues reached \$1.3 billion, an increase of \$200 million from 1989-90. (See Figure 3)

Figure 3
Petroleum Royalties

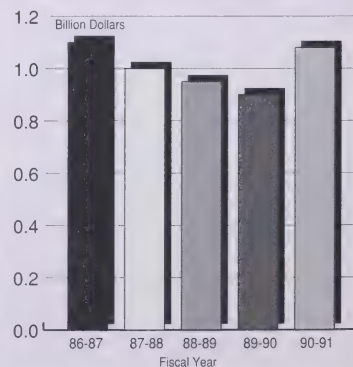


Natural Gas and By-product Royalties

Net Crown Royalty Revenue

Revenue in the 1990-91 fiscal year increased by \$119 million to \$1.08 billion in an oversupplied market, with producers throughout North America competing for limited markets. Natural gas revenues increased \$23 million, as a result of increased production. Sulphur revenues declined by \$3 million, due mainly to increased inventories. In contrast, gas liquids (propane, butanes and pentanes) accounted for a \$101-million increase in revenues, due to higher prices for all products, which are priced in relation to crude oil prices. (See Figure 4)

Figure 4
Natural Gas and By-product Royalties



Synthetic Crude Oil and Bitumen (Oil Sands) Royalties

Royalty revenue for 1990-91 totalled \$39 million, an increase of \$11.3 million from 1989-90. The increase resulted from escalated prices, scheduled royalty rate increases under the phase-in provisions of Crown agreements and one commercial project reaching pay-out.

Coal Royalties

The coal royalty revenue for 1990-91 totalled \$14.7 million. Stable prices and a competitive marketplace resulted in minor changes to the revenues during the period. The decrease of \$1.8 million from \$16.2 million reported for the 1989-90 fiscal year was the result of reporting adjustments for prior periods during 1989-90. (See Figure 5)

Other Mineral Royalties

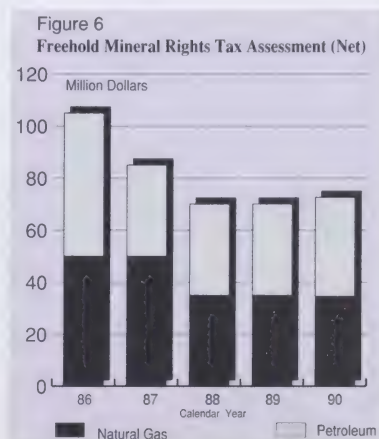
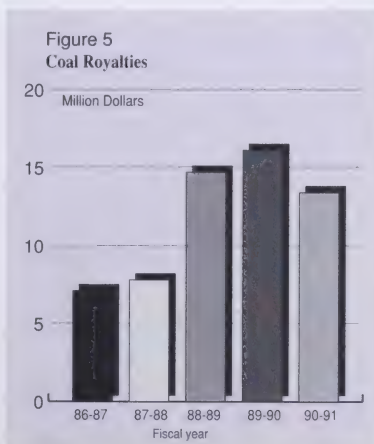
Revenues from the production of salt, sodium sulphate, quarriable minerals and gold totalled \$250,000, a decrease of \$50,000 from 1989-90.

Freehold Mineral Rights Tax

The Freehold Mineral Rights Tax is calculated on a calendar year basis. It is based on the value of petroleum and natural gas produced from freehold minerals.

For the 1989 taxation year, 4,984 taxable titles resulted in tax assessments of \$72.6 million. The total was made up of \$38 million from petroleum titles and \$34.6 million from natural gas titles.

Net revenues for 1990-91, after adjustments for relief and revisions for current and prior tax years, totalled \$76.1 million, an increase of \$7.3 million from 1989-90. (See Figure 6)



Public Offering of Petroleum and Natural Gas Rights

Revenues from the public offering by the Mineral Resources Division of 5,962 petroleum and natural gas agreements during the 1990-91 fiscal year totalled \$415.5 million, 7 per cent more than during the 1989-90 fiscal year. These rights were sold for an average price of \$173.85 per hectare, 4 per cent more than for 1989-90. A 13-year comparison of the revenues received for the public offering of petroleum and natural gas rights is shown in Figure 7.

Public Offering Highlights

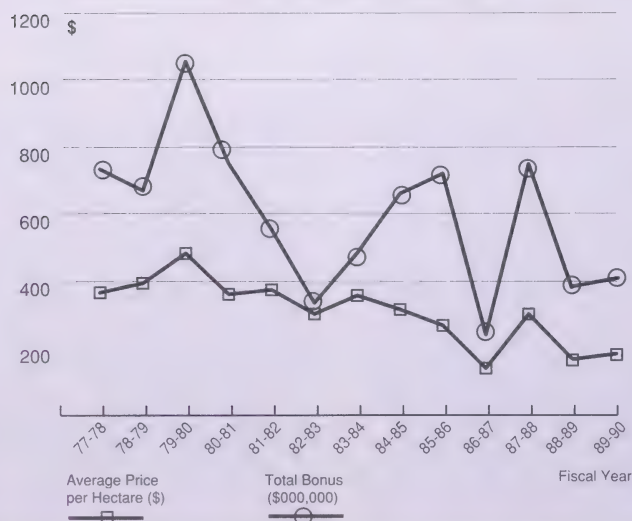
Two areas attracted significantly higher-than-average revenues for the public offering of petroleum and natural gas rights during the 1990-91 fiscal year. In the Berland River area, 17 parcels were sold for a total of just over \$14 million. The average price per hectare for these parcels was approximately \$1,400.

In the Taber area, 33 parcels were sold for a total of just over \$4 million. The average price per hectare for these parcels was approximately \$1,600.

Direct Purchases of Petroleum and Natural Gas Rights

Revenues from the direct purchase of 111 petroleum and natural gas agreements during the 1990-91 fiscal year totalled \$1.25 million, 4 per cent more than for the 1989-90 fiscal year. These rights were sold for an average price of \$72 per hectare, 57 per cent less than during the 1989-90 fiscal year.

Figure 7
Public Offering of Petroleum and Natural Gas Rights
Average Price per Hectare and Total Bonuses by Fiscal Year





Mineral Agreements

Background

The Alberta Crown owns mineral rights covering approximately 81 per cent of the 66 million hectares in the province. The remaining mineral rights are owned by: the Government of Canada, within national parks and on behalf of Aborigines for rights within Indian reserves, the Hudson's Bay Co., national railway companies, and original homesteaders through grants by the Government of Canada before 1887. Mineral rights in the province not owned by the Alberta Crown are termed "freehold."

Whether publicly or privately owned, mineral resources in Alberta have always been privately developed. Before minerals owned

by the Alberta Crown can be developed or recovered, the developer must hold an agreement for those minerals, although an agreement is not necessary to perform geophysical work. Issued by the Mineral Resources Division, mineral agreements consist of permits, licences or leases. Figure 8 depicts the number of active agreements in place for the 1990-91 fiscal year and the number of hectares involved.

The guiding principle of Alberta's mineral rights tenure system is that mineral leasing policy be favourable for resource identification, delineation and development to optimize mineral supply and the economic and environmental interests of the province.

Petroleum and Natural Gas Agreements

The Mineral Resources Division issues two types of petroleum and natural gas agreements: licences and leases. Both types may be acquired at sales by public tender. In certain limited circumstances, leases may also be acquired by direct purchase.

Petroleum and natural gas leases have a five-year term. Petroleum and natural gas licences, however, have terms of two, four or five years in the Plains, Northern and Foothills areas of the province, respectively (Figure 9). This feature recognizes that access to land is year round on the Plains and seasonal elsewhere.

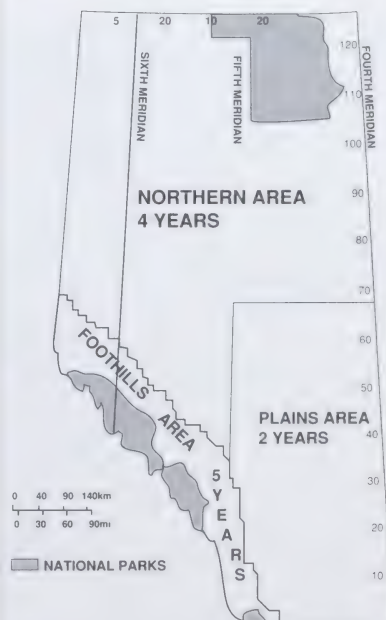
Figure 8

Active Mineral Exploration and Development Agreements

	Number of Agreements				Thousand Hectares			
	March 31 1990	Issued	Cancelled	March 31 1991	March 31 1990	Issued	Cancelled	March 31 1991
Petroleum and Natural Gases Licences & Leases	60,172	6,553	4,992	61,733	26,220	2,854	2,602	26,472
Oil Sands Prospecting Permits	4	0	4	0	12	0	12	0
Oil Sands Leases	299	17	20	296	2502	139	162	2479
Coal Leases	2,716	75	174	2,617	1,034	25	108	951
Metallic Mineral Exploration Permits	63	127	5	185	187	778	109	856
Metallic Mineral Leases	11	1	1	11	1	0	0	1
Ammonite Share Agreements	35	34	0	69	3	5	0	8
Others	147	20	15	152	21	16	3	34
Total	63,447	6,827	5,211	65,063	29,980	3,817	2,996	30,801

Figure 9

Petroleum and Natural Gas Areas



Public Offerings

During the 1990-91 fiscal year, 25 public offerings were held in Calgary and 5,962 petroleum and natural gas agreements were sold. These agreements, comprising both leases and licences, encompassed approximately 2.4 million hectares. Figure 10 depicts the number of agreements and hectares sold by public tender since 1977-78, the first full year under the current tenure system.

Direct Purchases

During 1990-91, 111 leases containing 17,308 hectares were issued by the Mineral Resources Division by way of direct purchase. These agreements are issued when the Alberta Crown owns only a portion of the petroleum and natural gas rights in a spacing unit and the balance of the rights are freehold. In these cases, Crown rights are issued only to the party holding rights to the freehold, a measure intended to facilitate drilling by that party.

Lease Continuation

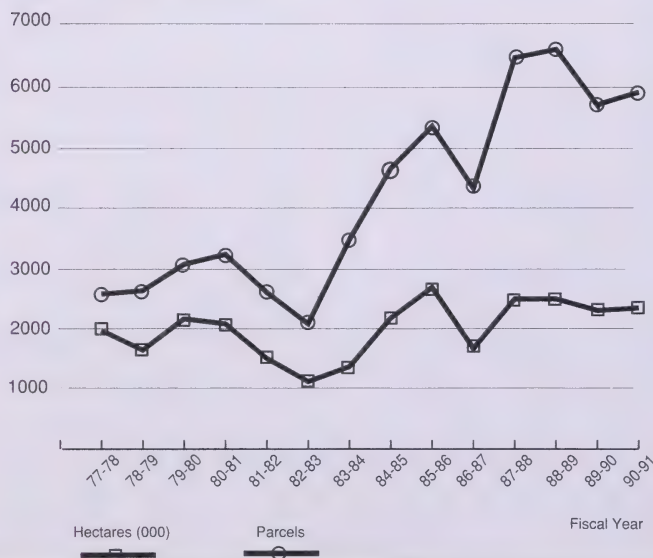
Shortly before a petroleum and natural gas lease reaches the end of its primary term, the lessee may apply to the Mineral Resources Division to have the lease continued, based on proven productivity. Petroleum and natural gas rights considered by the division to be productive are continued to the base of the deepest productive zone. Unproductive rights revert to the Crown.

During the 1990-91 fiscal year, 4,934 primary-term leases comprising 1,758,485 hectares, expired (Figure 11). Approximately 78 per cent, or 1,371,013 hectares, contained in these leases were not proven productive and reverted to the Crown.

When the initial drilling for an oil well is started not more than 90 days before expiry of the lease and drilling is ongoing, the division continues the portion of the lease considered to be capable of evaluation by the well. This continuation usually lasts for 90 days following completion of drilling. At the end of this 90-day period, the lessee may apply for further continuation based on productivity. This tenure provision is based on the general belief that a lessee who is actively pursuing drilling and related operations should be able to carry a lease over expiry.

During the 1990-91 fiscal year, 131 primary-term leases comprising 40,398 hectares were continued as a result of drilling operations started or under way near the end of the term of the lease. (See Figure 11)

Figure 10
Petroleum and Natural Gas
Parcels and Hectares (000) Sold 1977/78 - 1990/91



In cases where the division considers that potentially productive (as opposed to proven productive) petroleum and natural gas rights exist at the end of the primary term, a one-year continuation may be granted on payment of a \$25 per-hectare refundable security. The security is returned if a well is drilled on the potentially productive portion of the lease. At the end of the one-year period, the lessee may apply for further continuation based on proven productivity.

During the 1990-91 fiscal year, 244 primary-term leases comprising 72,915 hectares were continued where the division considered the petroleum and natural gas rights to be potentially productive. (See Figure 11)

Continued Leases

The Mines and Minerals Act provides for the monitoring of continued petroleum and natural gas leases. When productivity of a lease is in doubt, the Minister may serve a one-year notice stating that the lands or rights will revert to the Crown unless the lessee can provide continued evidence of productivity.

During the 1990-91 fiscal year, 986 non-productivity notices were served, affecting 213,964 hectares.

In addition, 832 non-productivity notices served in the 1989-90 fiscal year expired, affecting 207,167 hectares. As a result, 63 wells were drilled and an additional 40 wells re-entered or recompleted prior to the end of fiscal 1990-91. Seventy-nine per cent of the affected hectares reverted to the Crown and thereby became available for further acquisition.

Offset Drilling Obligations

When a well is drilled on freehold rights and is put on production, it has the potential to drain petroleum or natural gas from adjacent Crown mineral rights. This creates an offset drilling obligation. To protect the interests of Albertans, the Crown lessee is given the option of drilling a well, paying compensatory royalty in lieu of drilling, or surrendering lands or rights to satisfy the offset obligation.

In the case of oil wells, the offset drilling obligation is automatic and the lessee must satisfy the obligation without prior notice from the Crown. Should the lessee fail to satisfy the offset obligation within 90 days of the freehold well commencing production, a 30-day notice of default is served. In the case of natural gas wells, Crown lessees are served with a 90-day notice of their responsibilities to satisfy the gas offset obligation.

During the 1990-91 fiscal year, 531 freehold oil wells were reviewed and 38 oil offset default notices were served. As a result of these notices, 19 lessees elected to pay compensatory royalty, 9 surrendered the petroleum and natural gas rights, 9 drilled wells, and 1 notice was withdrawn.

During the fiscal year, 1,294 petroleum and natural gas posting requests were reviewed, and 49 gas offset notices were served. As a result, 20 lessees elected to pay compensatory royalty, 16 drilled wells, 8 surrendered the petroleum and natural gas rights, and 5 notices were withdrawn.

Figure 11
Expiring Petroleum and Natural Gas Leases in 1990-91 Fiscal Year

	Leases	Hectares	Percent of Total Hectares
Continued Based on Proven Productivity	914	268,527	15.3
Continued Based on Drilling Operations Near the End of the Term	131	40,398	2.3
Continued As Potentially Productive	244	72,915	4.2
Term of Lease Extended	8	5,632	0.3
Not Continued	3,637	1,371,013	77.9
Total	4,934	1,758,485	100

Unit Agreements

A number of parties, including the Alberta Government, can have an interest in a single oil or gas pool. Unit agreements are useful tools for maximizing oil and gas recovery while ensuring that all parties recover an equitable share of the resource. A unit agreement removes lease boundary limitations with respect to spacing unit requirements and optimizes the operation of wells and facilities.

All proposed unit agreements in the province are reviewed, negotiated and executed on behalf of the Minister by the Mineral Resources Division. During the 1990-91 fiscal year, 14 new unit agreements became effective and 3 existing ones were enlarged. At fiscal year-end, the Alberta Government was party to 569 units. Of these, 334 unitized both oil and gas within a pool, 42 unitized oil only, and 193 unitized gas only.

During the fiscal year, the division also continued to participate in negotiations for a new model unit agreement being developed by the Petroleum Joint Ventures Association. When ratified by industry and government, the new model agreement will replace the modified 1972 version now used.

Oil Sands Leases

During the 1990-91 fiscal year, the Mineral Resources Division administered 296 oil sands leases. One-third of these leases are in their second 21-year term and will expire between 1996 and 2008. Each second-term lease is required to be in production at a specified capacity in order to enter its third term. These leases encompass approximately half of both surface-mineable and non-surface-mineable oil sands reserves.

During the fiscal year, only 2 second-term oil sands leases produced at or above their prescribed capacity; 6 other second-term leases produced at less than their specified capacities, while the balance did not produce at all.

The division recognizes that those who are prepared to commit to production during the third term should be allowed to retain reserves under lease. The division has been working with industry to revise the Oil Sands Regulation.

Coal and Other Minerals

During the 1990-91 fiscal year, the Mineral Resources Division did not issue any new coal leases but did administer 2,716 existing coal leases comprising 951,000 hectares.

The division received 121 applications for metallic mineral exploration permits, comprising 760,000 hectares of rights, located primarily in northwestern Alberta. Interest in the area was fuelled by speculation that the exploration activity was for diamonds.

The division administered 69 ammonite shell agreements comprising 16,700 hectares of rights during the fiscal year and granted seven applications for an additional 21,600 hectares of rights. Ammonite shell of jewellery quality is Alberta's gemstone and is unique to the province. It is also a paleontological resource under the Historical Resources Act.

A total of 99 quarriable mineral dispositions comprising 10,273 hectares of rights were administered by the division during the fiscal year. In addition, the division issued 5 quarriable mineral agreements comprising 5,227 hectares of rights.

Changes to the Mines and Minerals Act were introduced in the 1991 spring session of the Legislature to allow the tenure systems for metallic, industrial, quarriable and placer minerals to be simplified under a common regulation.

Metis Settlements Act - Subsurface Resources Agreement

On November 1, 1990, the Government of Alberta signed a Letters Patent granting ownership of 505,875 hectares to the Metis Settlements General Council. The Alberta Crown retains ownership of the subsurface mineral rights on Metis Settlement lands and will continue to collect bonuses and royalties from the disposition of these mineral rights. Following the signing of the Letters Patent, a subsurface resources agreement, referred to in the Metis Settlements Act as the Co-management Agreement, was signed by Energy Minister Rick Orman and Alberta's Metis leaders. It outlines a framework for involving Metis people in mineral resource development, and ensures that development is compatible with the land-use priorities set by the Metis people themselves.



Conventional and Non-conventional Oil

Background

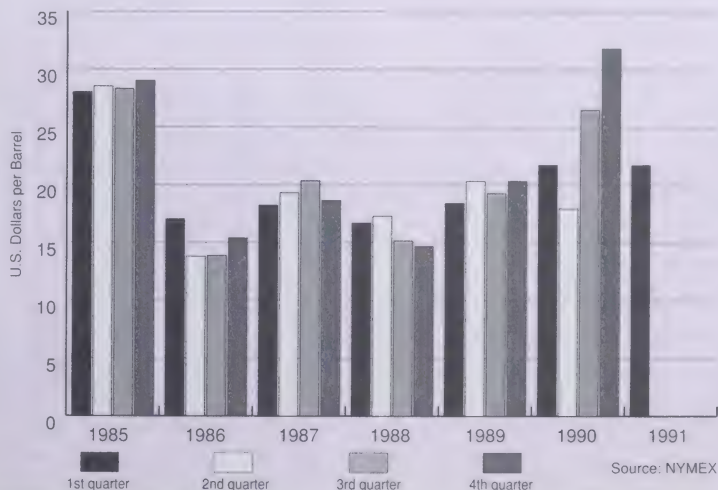
Prices

The average price of oil for the entire 1990-91 fiscal year was US \$24.49 (West Texas Intermediate Crude at Cushing, Oklahoma). Significant price fluctuations were recorded throughout the year. The price of oil averaged US \$18 in the first quarter, down from the previous quarter average of US \$21.72. Lower prices were due to excess supplies from over-production in OPEC countries. Iraq's invasion of Kuwait on August 2, 1990 dominated the oil market for the next six months. As the reaction to Iraq coalesced into economic sanctions and the threat of war, prices gradually rose from around US \$21.50 in early August to a peak of US \$40.42 in early October. The "war premium" elevated prices above the price implied by oil market fundamentals.

As it became clear that oil supplies from the Gulf region would not be curtailed further, prices began to decline. Saudi Arabia and other countries, both within and outside OPEC,

quickly made up for the substantial loss of exports from the oil embargo. The world oil market began to discount Iraq's ability to disrupt the crucial flow of oil from Saudi Arabia. A large stock build-up earlier in the year added to confidence in the market's ability to cope with the crisis. By early January, prices stabilized in the mid-\$20 range. With the onset of the successful air campaign against Iraqi forces, the market relaxed even more, and prices remained between US \$19 and US \$22 through the end of March. (See Figure 12)

Figure 12
West Texas Intermediate Crude Oil Prices



Production

In calendar year 1990, Alberta produced a total of 459 million barrels of crude oil. This comprised 334 million barrels of conventional crude, 76 million barrels of synthetic crude and 49 million barrels of crude bitumen. These figures can be broken down into:

Conventional crude oil:

- 270 million barrels of light-medium grades
- 64 million barrels of heavy oil
- 334 million barrels of crude oil

Synthetic crude from crude bitumen:

- 57 million barrels from Syncrude
- 19 million barrels from Suncor
- 76 million barrels of synthetic crude

Crude Bitumen:

- 49 million barrels

Of the conventional crude oil, 67 million barrels, or 20 per cent, were produced from 48 projects for enhanced oil recovery in which the Crown had an interest. Light and medium grade oil accounted for 59 per cent and heavy oil accounted for 14 per cent of total crude oil production. Synthetic crude accounted for 17 per cent of the 459 million barrels of crude oil produced while total bitumen production made up 10 per cent of the total.

Productivity, measured in barrels per day, varied by commodity:

- Conventional light and medium crude oil dropped by 5.1 per cent to 740,000 from 780,000
- Conventional heavy oil climbed 10.8 per cent to 175,000 from 158,000 in 1989
- Synthetic crude oil climbed 1.5 per cent to 208,000 from 205,000 in 1989
- Crude bitumen rose 3.8 per cent to 135,000 from 130,000 in 1989.

Figure 13 provides a comparison of daily production statistics for oil and bitumen over a five-year period.

Reserves and Potential

At the end of calendar year 1990, remaining established reserves of conventional crude oil totalled 3.2 billion barrels, down 9.4 per cent from the 1989 level of 3.5 billion barrels. At current production levels, this would represent a conventional crude oil supply of more than 9 years, although new discoveries tend to maintain reserve levels. The remaining ultimate potential for production of conventional crude oil was estimated by the Energy Resources Conservation Board at 7.3 billion barrels.

Remaining established reserves of crude bitumen that can be retrieved with current technology from the deposits under active development include 2.9 billion barrels for the surface-mining projects and 0.4 billion barrels for the in-situ projects. These represent a supply of 23 years given 1990 production levels. The remaining ultimate potential for production of crude bitumen was 307 billion barrels at year-end 1990.

Conventional Oil Supply Development

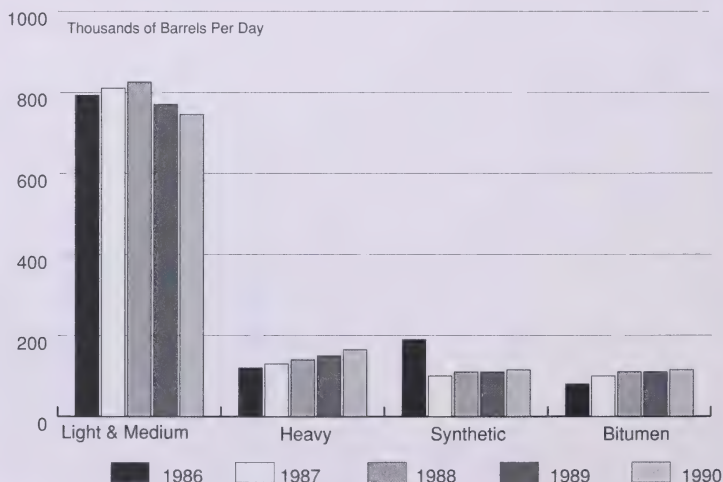
Alberta has continued to look toward the market to encourage investment in conventional oil supply development. In the 1990-91 fiscal year, the government continued to support a stable, attractive fiscal regime for the industry.

Alberta's Response to the Persian Gulf Crisis

Prior to the invasion of Kuwait by Iraq, Canada participated in the development of an emergency plan through the International Energy Agency to address potential disruptions to crude oil markets resulting from any conflict in the Persian Gulf area.

Oil prices rose steadily after Iraq invaded Kuwait on August 2, 1990 at the beginning of the six-month Persian Gulf crisis. This resulted in substantial increases in gasoline prices.

Figure 13
Average Daily Production of Crude Oil



In response to public concern, Energy Minister Rick Orman, in association with Dennis Anderson, Minister of Consumer and Corporate Affairs, created the Gasoline Consumers' Information Committee to examine retail gasoline marketing in Alberta. The committee, consisting of representatives from the Alberta Motor Association, the Alberta Branch of the Consumers' Association of Canada, and the Petroleum Resources Communication Foundation, disseminated information to help consumers better understand how gasoline is marketed and to make informed purchasing decisions. In December 1990, the committee released a report on gasoline marketing in Alberta.

The second annual conference of the Council of Provincial Energy Ministers was held in Winnipeg in August 1990. Although environmental issues were a priority, the agenda devoted considerable time to discussions about the Persian Gulf crisis and its implications for Canada's energy supply.

Energy ministers from across Canada met in Ottawa on October 17. Discussions focused on emergency planning in Canada in the event of a world oil shortage and on mechanisms to gain the most effective response at the national, provincial, territorial and local levels.

On January 11, 1991, Mr. Orman announced that the Government of Alberta would work closely with the federal government and other provincial and territorial governments to implement petroleum demand-restraint initiatives.

The announcement was in response to the decision that day by the governing board of the International Energy Agency to implement an emergency response contingency plan to make available an additional 2.5 millions barrels of oil per day to world markets. The plan was supported by the Canadian Government.

The plan called for world-wide provision of 2.5 million barrels per day (Mbpd), most to come from release of strategic reserves and 0.5 Mbpd to come through demand-restraint programs.

Canada's commitment was to reduce consumption by 115,000 bpd. In response, Alberta initiated the Energywise program to meet its demand-restraint goal of 13,000 bpd as well as to promote emergency conservation.

Royalty Tax Credit

The Alberta Government extended and revised the royalty tax credit program effective January 1, 1990. Enacted for a five-year period, the Alberta Royalty Tax Credit (ARTC) program provides oil and gas producers with a refundable tax credit equal to a percentage of the first \$2.5 million in Crown royalty paid by each corporation. For administrative simplicity, the credit rate for both oil and gas production is linked to the oil price.

When the price of oil diverged sharply from natural gas prices during the Persian Gulf crisis, Alberta introduced a temporary gas ARTC supplement for 1991, making the minimum ARTC rate for natural gas production equal to 70 per cent for producers with less than \$2.5 million in oil royalty.

The five-year term of the ARTC program offers significant improvements to the cash position of small companies that have been successful in their search for oil. In addition, it promotes greater certainty in financial markets, thus providing the smaller oil and gas companies greater access to development capital. The price sensitivity of the benefits also helps to protect companies from uncontrollable and unpredictable short-term price changes. This, in turn, promotes the orderly development of Alberta's energy industry in accordance with the long-term basic economics of Alberta's energy resources.

Low-Productivity Well Allowance

As oil wells approach the latter stages of their producing life, production decreases substantially. This causes operating costs per barrel of oil produced to increase. The result is that some recoverable oil is left in the reservoir because it becomes too costly to produce. To ensure that as much oil as possible is produced from reservoirs, Alberta gives lower royalty rates to oil from wells producing at less than 1,200 barrels of oil per month.

Non-conventional Oil Development

As the supply of conventional oil in North America is depleted, consumers will be forced to turn to non-conventional sources of petroleum to avoid a growing dependence on Middle Eastern oil. Fortunately, Alberta has very large deposits of oil sands. These oil sands underlie about 77,000 square kilometres in the province and contain about 1.7 trillion barrels of oil. Estimates indicate that over 300 billion barrels of this oil are ultimately recoverable. These reserves are similar in size to the proven reserves of Saudi Arabia.

In encouraging the development of this oil sands resource, the Government of Alberta's main objective is to promote sustainable and environmentally-sensitive development within the province using the best technology. Alberta's strategy of oil sands development is aimed at unlocking our massive resource potential for the long-term prosperity of the province, the continued security of domestic

crude oil supply for Canada, and the economic and industrial benefits that this development will bring.

Alberta's oil sands production has increased by more than 100,000 barrels per day over the past five fiscal years. (See Figure 14) During 1990-91, oil sands production accounted for approximately 20 per cent of Canada's total oil production.

1990-91 Performance and Activity

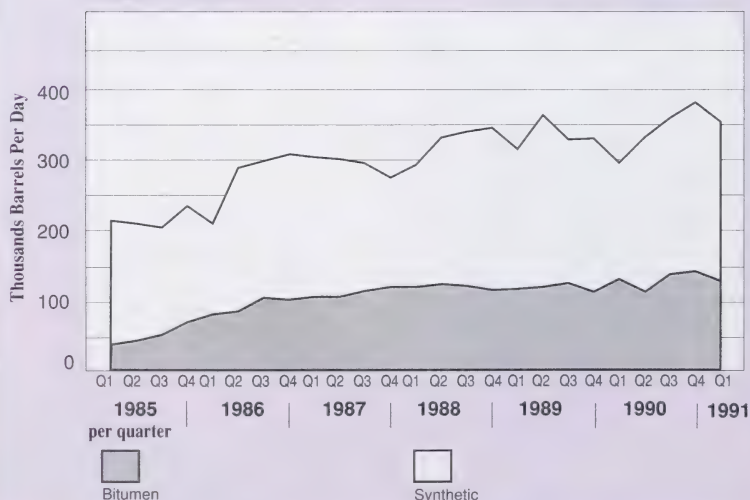
During 1990-91, prices for synthetic crude oil and bitumen from Alberta's oil sands were very volatile. During the Persian Gulf crisis, prices climbed much higher than expected, and all projects were producing at full capacity to take advantage of this temporary price increase. When the crisis subsided, bitumen and heavy oil prices fell as a surplus of heavier crudes flooded the market. Near the end of the fiscal year, the price differential between light and heavy crudes reached unprecedented levels.

During 1990-91, the Alberta Government continued its involvement in the OSLO Commercial Project, Syncrude and the Lloydminster Bi-Provincial Upgrader (See Appendix). With the withdrawal of federal funding for OSLO, Alberta entered into the OSLO Pre- Appropriation Agreement to provide the project with up to \$46.8 million for its initial design phase while negotiations continued for the construction phase.

The Alberta Government announced its approval in principle of an agreement that would allow Syncrude Canada Ltd. to upgrade bitumen from sources other than Syncrude leases. This would enhance the use of existing upgrading facilities and encourage upgrading activity in Alberta.

Another agreement-in-principle was reached with Amoco for its Soars Lake project to further promote oil sands development. The agreement with Amoco sets out the principles of a Crown agreement for the commercial development of the Soars Lake oil sands project located in the Cold Lake region of northeast Alberta. The principles are similar to those established for other commercial in-situ oil sands projects. To date, the Soars Lake project had involved experimental work. Amoco made application to the Energy Resources Conservation Board for commercial development of the lease.

Figure 14
Oil Sands Production





Natural Gas

Background

Prices

Natural gas prices remained relatively constant relative to the previous fiscal year. The average market price for Alberta gas over the 1990-91 period was \$1.54/gigajoule (GJ), which was slightly higher than \$1.53/GJ for 1989-90.

In December 1990, prices were \$0.09/GJ higher than in December 1989 due to severe weather conditions which increased demand. The spring saw a decrease of \$0.10/GJ to \$1.49/GJ, compared to \$1.59/GJ for March 1990, due to unusually warm weather conditions which lowered demand.

Production

Production of natural gas in 1990 totalled 3.1 trillion cubic feet, an increase of approximately 1.2 per cent over the previous year. This was led by an increase in exports of 7.6 per cent, while the domestic and intra-Alberta markets decreased by 6.4 per cent.

Reserves and Potential

At calendar year end 1990, remaining established reserves totalled 58.2 trillion cubic feet, essentially unchanged from the previous year. Alberta's reserve-to-production ratio is 18 years. The remaining ultimate potential for production of marketable natural gas was estimated by the Energy Resources Conservation Board at 110 trillion cubic feet.

Royalty Review

During 1990-91, a comprehensive review of the gas royalty system was initiated to assess the effectiveness of the royalty regime in light of market circumstances, supply considerations and expectations for the future.

Transportation and Markets

During the fiscal year 1990-91, the department focused on two major issues affecting gas transportation and markets: expansion and tolling of the TransCanada PipeLines (TCPL) system, and regulatory restructuring in California and its impact on commercial trading relations with Alberta producers. In addition, there was progress on the issue of contractual supply protection.

TCPL Expansion

TCPL made an application to the National Energy Board (NEB) for expansion of its system by 831 million cubic feet a day to serve eastern Canadian and U.S. northeast markets. The total cost of the expansion was \$2.4 billion. The magnitude of the expansion resulted in challenges to the rolled-in tolling methodology. As a result, the NEB facilities hearing (GH-5-89) was broadened to address issues of tolling methodology and tests to assess the economic feasibility of pipeline expansions.

The department analyzed various tolling methodologies and evaluated the economics of the proposed expansion in support of participation by the Alberta Petroleum Marketing Commission in the NEB hearing. The department's analysis supported the continued use of rolled-in tolling.

In addition, the department developed a Market Based Economic Evaluation to assess the economic feasibility of the expansion. This would have determined whether the discounted revenue from a contract backing the pipeline expansion could recover the discounted costs, based on a market-based valuation of gas reserve costs.

In view of the importance of the issue and the evidence presented, a departmental official also participated in the witness panel at the hearing.

In its decision, released November 6, 1990, the NEB supported continuation of the use of rolled-in tolls. The NEB also ruled against a market-based economic evaluation. The NEB indicated that it will assess economic feasibility based on consideration of a number of factors relating to use of the facilities and payment of demand charges. The NEB also approved a portion of the facilities in order for TransCanada to serve certain customers beginning November 1, 1991.

By fiscal year end, the NEB had not yet granted TransCanada PipeLines approval to construct the remainder of its 1991 and 1992 facilities expansion program.

Other Expansions

Throughout the year, two proposals to expand pipeline capacity between Alberta and California took shape. The proposed Pacific Gas Transmission expansion would transport 755 MMcf/d to California and 148 MMcf/d to the Pacific Northwest at a cost of approximately \$809 million. The Altamont project would transport 700 MMcf/d to southern California at a cost of \$573 million.

In February 1991, Altamont and PGT held their open seasons to allocate firm capacity on their systems. Prospective shippers were given the opportunity to submit bids for capacity. As a result, full capacity was awarded on both projects.

Gas Sales to California

In February 1990, the California Public Utilities Commission (CPUC) instituted regulatory changes under its Order Instituting Rulemaking (OIR) procedures. The aim of the OIR was to encourage non-core customers to buy gas directly and thereby limit the gas procurement role of large regulated gas utilities. This had the effect of reducing Pacific Gas & Electric (PG&E) gas requirements from Alberta & Southern (A&S), and its takes from PGT.

The department evaluated the implications of the proposed restructuring. It supported the Alberta Petroleum Marketing Commission (APMC) in its participation in the ongoing OIR proceedings. In conjunction with the APMC, the department discussed issues directly with the CPUC and with the major commercial interests in the California market.

The California parties developed a settlement in the proceedings. As part of the settlement discussion, they discussed issues concerning Canadian supply contracts with Alberta representatives. The result of these discussions was the Access Agreement, signed in August 1990, which allowed direct price negotiations between end users and producers, while respecting existing contractual arrangements.

On September 25, 1990, the CPUC incorporated elements of the Access Agreement in its procurement rules. The Access Agreement was accepted by producers in December 1990. Discussions continued in preparation for a scheduled implementation date of August 1, 1991, for a three-year period.

Following completion of the OIR process, departmental attention shifted to implementation of the new rules, analysis of proposals in the CPUC's Capacity Brokering proceeding, and to encouraging commercial negotiation for restructuring existing commercial arrangements.

Contractual Supply Protection

On July 5, 1990, the Gas Utilities Statutes Amendment Act 1990 was passed by the Alberta legislature. This bill enabled development of regulations to allow core market gas users access to the direct sales gas market. The bill ensures that core market users continue to have appropriate supply protection through adherence to minimum contracting standards. It also provides for direct sales arrangements to bear all of the relevant costs.

Removal Permits

The Energy Resources Conservation Board issues long- and short-term removal permits. Long-term removal permits require approval by the Lieutenant Governor in Council. Short-term permits (less than two years) require Ministerial approval. The department processed more than 900 applications for gas removal permits in 1990.



Coal

Background

Alberta has extensive coal resources and produces three general types of coal at 11 major mining locations.

Six mines produce sub-bituminous coal for use by Alberta utilities. These mines, all located in the Plains region, provide the basic fuel for almost 90 per cent of Alberta's electric power generation. Highvale, Canada's largest coal mining operation, produces more than 20 per cent of the country's coal.

Two mines produce thermal bituminous coal. This high heat value, low-sulphur coal is exported to Japan and Ontario where it is used in thermal power plants.

Three mines produce metallurgical coal, most of which is exported for use by the steel industry in Japan. Other markets include Korea and Brazil.

Prices

Export prices for metallurgical coal are largely determined by the buying practices of a consortium of Japanese steel manufacturers, which forms the single largest buyer in the market. Prices for export thermal bituminous coal are largely determined by Japanese utilities and Ontario Hydro.

There was a five-year decline in world prices for metallurgical coal that ended in 1990, with 1990 prices showing a 3-per-cent recovery over 1989. Prices for thermal coal also showed modest increases, with thermal bituminous prices increasing 7 per cent and sub-bituminous up 2 per cent in the same period.

Production

In the calendar year 1990, Alberta produced 35.2 million tonnes of coal, up slightly from 1989. The estimated value of 1990's output was \$484 million, essentially the same as in 1989.

Coal Supply Development

Alberta's coal royalty formula is based on costs, revenues and investment. Royalty share increases as a mine achieves greater economic success. The flexible royalty rate increases from 5 per cent on small or marginally economic projects to higher levels on more profitable operations. For new projects or significant mine expansions, the royalty rate is reduced, with the increase to full royalty phased in over a five-year period.

The government may waive the minimum 5 per cent royalty in certain circumstances. It has done this on a temporary basis for some mines. When this occurs, royalty is collected using the general royalty formula, which may result in zero royalty if costs from a mine exceed revenues. These various reductions result in a province-wide effective net royalty of 4 per cent.

Coal to Ontario Initiative

The Action Committee on Western Canadian Low-Sulphur Coal to Ontario continued its work during the year. Formed in 1987, the committee is comprised of the Deputy Prime Minister and the premiers of British Columbia, Alberta, Saskatchewan and Ontario.

The committee's objectives are to:

- Identify methods to improve the competitiveness of western Canadian coal to Ontario
- Review all regulatory and fiscal aspects of coal transportation

- Pursue product-oriented research programs related to coal technologies.

In 1987, this committee created an Intergovernmental Secretariat which consulted with coal producers, transporters and users to develop possible technological, regulatory and policy options that could lower the delivered cost of western Canadian coal in Ontario. The secretariat is comprised of one official from each of the five participating governments.

In conjunction with industry, the secretariat has identified 17 projects relating to improvements in mine productivity, coal products, transportation, taxes and regulatory

costs. The projects are listed in Figure 15. Alberta has assumed the lead role for most technical projects.

Funding for these projects was split between the federal government, the provincial governments and industry. Provinces chose the projects they wanted to co-fund. The individual projects were then equally funded by the participants: one-third by industry, one-third by federal government and one-third shared by the provinces participating in that project. Funding can be extended over several fiscal years.

Figure 15
Western Canadian Low-Sulphur Coal to Ontario

Mine Productivity Improvements	Project Leader	Project Initiation (Fiscal Year)	Project Total* (\$ mil)	Total Alberta Contribution (\$ mil)	Alberta Contribution 90/91 (\$ mil)
1 Thick Seam Extraction	Alberta	'88/89	10.2	2.75	0.32
Coal Product Improvements & Coal Use					
2 Air-Sparged Hydrocyclone	Alberta	88/89	0.39	0.13	—
3 HYDROSIZER for Fine Coal	Alberta	88/89	0.04	0.02	—
4 ARCO Flux	Saskatchewan	88/89	0.06	0.01	—
5 Compound Water Cyclone	Alberta	90/91	0.37	0.06	—
6 Tailings Reclamation	Alberta	88/89	0.14	0.04	<0.01
7 Thermal Treatment	Saskatchewan	90/91	0.08	0.01	—
8 On-Line Coal Analyzer	Alberta	89/90	0.08	0.01	—
9 Coal/Oil Upgrading	Alberta	91/92	3.81	1.27	0.31
10 Preparation on Plant Efficiency	Alberta	91/92	0.81	0.27	0.08
11 IGCC Feasibility	The Coal Association of Canada	90/91	1.00	0.12	—
Transportation Improvements					
12 Trans/COM (Coal-Oil-Mixture) Phase 2	Alberta	89/90	0.98	0.35	—
13 Rail Efficiencies	Canada	88/89	0.10	—	—
14 Thunder Bay Terminal Operations	Ontario	88/89	0.07	—	—
15 Laker Transportation	Ontario	88/89	0.07	—	—
Improvements in Taxes and Regulatory Costs					
16 Taxes and Regulatory Costs on Rail and Pipeline Traffic	Ontario	88/89	0.04	—	—
17 Taxes and Regulatory Costs on Coal Producers	The Coal Association of Canada	88/89	—	—	—
Total			19.00	5.11	0.7222

* Total funding may extend over several years

Research & Technology

Alberta Office of Coal Research and Technology

This office was established in 1984 to provide a focus for the Alberta Government's support for coal research and technological development. The office's role involves research and development planning and funding. Details of the research programs supported through the organization, as well as project expenditures, are contained in the office's Annual Review.

Through the Alberta Office of Coal Research and Technology, the department supports three major developments: clean-coal technologies for the combustion or gasification of coal; coal-combustion systems that generate the steam used in heavy oil extraction; and coal slurry transportation systems.

Although low-sulphur Alberta coal produces few sulphur-based emissions when burned, several technologies are being developed that have the potential to burn Alberta coal even more cleanly. These technologies could be retrofitted to existing coal-fired, power-generating facilities. Alternatively, coal can be converted to a combustible gas from which most harmful substances can be removed without being released into the atmosphere. The combustible gas is then burned to generate electricity.

Many power plants and industrial operations that use oil as fuel could experience reduced costs if coal were used in place of the oil. To make this possible, coal-water slurries that behave and look like oil have been developed. When coal is mixed with hydrocarbons called condensates, the coal can be transported long distances by pipeline and then separated and recovered as a solid. The department is participating with industry in developing coal slurries and supporting pipeline systems for their transportation.

Carbon Dioxide Research

A government-industry study reviewed technologies capable of reducing the carbon dioxide emissions produced when coal is burned. Recovery and use of these emissions, or disposal of them, represented another principal aspect of the study. The study group was led by the Alberta Oil Sands Technology and Research Authority (AOSTRA). Most of the technologies are still at an experimental stage, but some recovered carbon dioxide probably could be used in enhanced oil recovery operations.

Integrated Gasification Combined Cycle

Integrated Gasification Combined Cycle (IGCC) is a process for using coal to generate electricity while producing fewer emissions than by conventional coal-burning processes. It is more efficient and is consequently capable of producing less carbon dioxide.

During 1990, the Coal Association of Canada, several coal companies and the members of the Action Committee on Western Canadian Low-Sulphur Coal to Ontario (the governments of Canada, Ontario, Alberta, Saskatchewan, and B.C.) funded an investigation into the economic and technical feasibility of building and operating an IGCC plant in Canada. Staff from the department's Research and Technology Branch provided project management and technical support. Alberta contributed \$124,167 to the study's \$1 million cost. The study results will be released in 1991.



Other Minerals

Hydrogen Technology Research Program

A joint industry-government hydrogen technology research and development program was initiated in 1988-89. It is funded by industry and the Alberta/Canada Energy Resources Research Fund. Thus far, 18 research projects have been carried out. They are described in detail in the Hydrogen Technology Research Program Annual Review 1990-91. Much of the focus of this program has been on methods for producing hydrogen that are less expensive than the current steam-methane reforming process which manufactures hydrogen from natural gas.

One promising alternative source is hydrogen sulphide, a major component of sour gas. Several research projects have focused on this option. Studies were also conducted on systems for storage and distribution of hydrogen. These will be needed as demand rises for hydrogen in the production of synthetic crude oils and the upgrading of heavy oils.

Sulphur

Alberta is a world leader in the production of sulphur, producing more than 5 million tonnes annually. Ninety per cent of current production is from gas processing plants, which recovered 4.8 million tonnes in 1990. Oil sands plants recovered 500,000 tonnes in 1990 from their bitumen production, while oil refineries recovered 15,000 tonnes.

Most of Alberta's output is exported as pure elemental sulphur. It is used in the manufacture of sulphuric acid for industry and in the production of fertilizer. In 1990, the average plant gate price for sulphur was \$59 per tonne.

Crown royalty collected on sulphur is 16.66 per cent, less allowances for processing. Where sulphur is collected as a waste material in the production of natural gas, the processing allowance may exceed the value of the sulphur royalty. In such cases, the allowance is credited against royalty payable on natural gas.

The remaining established reserves of sulphur in Alberta at calendar year-end 1990 are estimated by the Energy Resources Conservation Board to be 106 million tonnes. Of this total, 89 million tonnes are recoveries from natural gas and 17 million tonnes are from bitumen. The remaining ultimate potential for sulphur production is much greater: 226 million tonnes from gas and 2,195 million tonnes from bitumen.

Other Minerals

The department collects production royalty on the extraction of salt from underground caverns through individual agreements with the four operators engaged in salt extraction.

Minerals such as nitrogen and carbon dioxide extracted during natural gas processing pay production royalty as natural gas by-products.



Electricity

Background

Alberta has a mix of investor-owned and municipally-owned electrical utilities. Four of Alberta's electrical utilities are fully integrated since they generate electricity and provide bulk transmission and distribution service to final consumers. The remaining utilities purchase power wholesale from TransAlta Utilities Corporation (TAU) and provide distribution service to final consumers.

The Energy Resources Conservation Board (ERCB) is responsible for recommending generating plants that are required to meet forecast electric requirements. The Public Utilities Board (PUB) is responsible for setting the consumer rates of the investor-owned utilities and for approving costs pooled under the Electric Energy Marketing Act. (See next section) Rates for the municipal utilities and their customers are set by their city councils.

Coal-fired plants have traditionally been the most economical source of power and therefore provide 90 per cent of the electricity generated in the province. In addition, there are a limited number of gas-fired plants and hydro facilities. During the 1990-91 fiscal year, demand for electric energy in Alberta increased 4.5 per cent.

Electric Energy Marketing Act

The Electric Energy Marketing Act (EEMA) was introduced in September 1982 to provide a mechanism to reduce the disparity of electrical rates charged to similar consumers in different parts of the province. The basic concept of EEMA is to recover the costs of generation and transmission facilities from electricity consumers province-wide independent of ownership, franchise boundaries and geographic location. The generation utilities under EEMA are TransAlta, Alberta Power Ltd. (APL) and Edmonton Power.

Increase in Electrical Bills

Electrical bills increased for most consumers over the 1990-91 fiscal year. (See Figure 16) The increases were due to a number of factors, including: addition of generation and transmission facilities required to meet increased electricity demand, GST, and termination of the Government of Alberta's provincial income tax rebate. TAU's and APL's rates were also restructured in 1990, resulting in higher-than-average increases for some customers and lower-than-average increases for others as existing cross-subsidies were reduced. These were the first increases for TAU's customers since 1986 and for APL's customers since 1987.

Regulatory Review

In 1989, and again following the transfer of responsibility for electricity policy matters to the Minister of Energy in January 1990, the government received suggestions and comments from the private utilities, municipal utilities and industrial consumers on aspects of electric utility planning and regulation in Alberta. In essence, those comments questioned the effectiveness of the current regulatory process in pursuing the basic objective of regulation.

In early 1991, the department initiated a review of the current approach to regulation of electricity to determine whether changes could improve its effectiveness. The review will extend into the 1992-93 fiscal year, involving extensive consultation with stakeholders and a formal response to a discussion paper prepared by the department. Assisting in this review is a task force comprising representatives of the investor-owned and municipal utilities, industrial consumers, rural electrification associations, municipalities, small power producers and regulators.

Figure 16
Increase in Electrical Bills - March 31, 1990 to March 31, 1991

	Residential	Commercial	Industrial	Farm
TransAlta Utilities	30%	4%	16%	12%
Retail				
Alberta Power Limited	28%	2%	17%	10% City
Calgary	23%	17%	17%	—
City of Edmonton	11%	4%	4%	—

Note 1: Electrical bills were relatively stable over the previous four years. The exception is the City of Edmonton which phased in the first Genesee unit, resulting in smoother increases in electrical bills over the past five years.

Note 2: GST is only included in the increases for residential electrical bills since most non-residential consumers can recover their GST costs.

Interprovincial Cooperation

Agreements between Western Utilities

Planning and coordination among electrical systems has extended into neighbouring provinces. Alberta currently has an intertie with British Columbia that can transfer more than 1000 megawatts (MW) and an intertie with Saskatchewan for 150 MW.

At the Western Premiers' Conference in June 1989, the premiers of Manitoba, Saskatchewan, Alberta and British Columbia agreed to begin joint studies of the potential benefits from increased coordination among the electrical systems in their jurisdictions. A task force of representatives from the four provinces was formed to undertake this project.

One study by B.C. Hydro and TransAlta (representing Alberta's electric utilities) identified potential benefits of up to \$400 million (in 1990 dollars) from 1990 to 2010. The two utilities negotiated an agreement to take advantage of the potential benefits. Increased coordination between Alberta and Saskatchewan is not being considered at this time due to limited potential benefits.

Trans-boundary Water Management

British Columbia and Alberta are developing an agreement on trans-boundary water management. The key issue in Alberta is the impact of activity in British Columbia affecting water flows in the Peace River. Water flows influence the potential for hydro projects in Alberta. For example, hydro projects on the Peace (near Dunvegan) and Slave rivers have already been considered for the generation of electricity in Alberta.

Research

Small Power Projects

The Small Power Research and Development Program was introduced in June 1988. The aim is to facilitate the generation of electricity in Alberta through small projects using renewable energy sources such as biomass or wind, hydro, solar, or geothermal power.

The program will monitor production from small power projects. This will allow Alberta to determine the long-term contribution that small power can make to the provincial electrical system. The program will allow 125 MW of eligible small power projects to be connected to the system up to December 1994.

The program is fully subscribed. Initial allocations have been approved for 20 MW of wind projects, 60 MW of biomass, and more than 45 MW of small hydro.

Cogeneration Study

During 1991, a policy study was initiated on cogeneration, the simultaneous production of electric and thermal energy from a single fuel source. The study will define the commercial potential for cogeneration in Alberta and determine if there are any policy or regulatory constraints to development.

Legislation

Overhanging Power Lines

Amendments were made through the Electric Statutes Amendment Act to the Hydro and Electric Energy Act, the Water, Gas, Electric and Telephone Companies Act and the Municipal Government Act to exempt overhang from constituting trespass. Overhang occurs when a power pole is located on public land just outside the property line, but the cross arms and power lines protrude over and above the private property. The amendments, passed in the spring session of the Legislature in 1990, ensure that the utilities do not have to move existing lines to avoid trespass.

Small Power Research and Development Program

In 1989, the Small Power Producers Association of Alberta asked that the price paid for small power under the program be reviewed. Dr. George Govier, a former chairman of the Energy Resources Conservation Board, undertook the review which led to the Small Power Research and Development Amendment Act, 1990, passed in the 1990 spring session of the Legislature. Key amendments included:

- The program price paid for small power increases to 6.0 cents/kWh from 5.2 cents/kWh starting in 1995
- An optional price escalating with inflation and starting at 4.64 cents/kWh in 1990 is now available
- The Public Utilities Board was given the authority to review all contracts that are longer than 10 years and to determine the appropriate price for the balance of the contract
- Small power producers under the program can become eligible under the Utility Companies Income Tax Rebate Act and receive a revenue adjustment
- The list of fuels eligible under the program was expanded to include solar, geothermal and peat resources.



Industry Analysis & Trade

Financial and Industry Analysis

Events during 1990-91 have demonstrated the importance of tracking and analyzing industry financial performance and trends. Market deregulation for oil and gas, the price collapse of 1986, the radically different price expectations that emerged following the price collapse, and the behaviour of industry in dealing with new realities all had a profound effect on the industry's financial health.

Problems of equity financing in the energy industry led the department to find ways to monitor more closely the financial health of the petroleum industry and the level of industry activity within the province.

The department tracks the performance of the industry as a whole as well as the various industry segments. The performance of individual companies within the industry is also monitored to identify industry trends and strategies.

In 1990-91, the department significantly improved its data sources for industry information and will now be able to monitor the health and performance of the industry more efficiently and effectively.

The effects of changes to fiscal regimes and policies such as the 1990-1991 federal interest rates and exchange rates were also tracked. Changes such as the cancellation of the Canadian Exploration Incentive Program as well as previous fiscal changes, including the Large Corporations Tax, were analyzed and monitored to measure their effect on Alberta's petroleum industry.

Through its involvement with the Intergovernmental Working Group on Mines and Minerals, the department was also involved in analyzing fiscal issues such as the tax treatment of reclamation expenditures and flow-through share financing.

The department also monitors the number of wells drilled, rig utilization, land sales, well licences, and seismic activity. The department has developed weekly and monthly reports that track the performance and health of the energy industry as well as a report on new developments.

Investment Promotion

The department undertakes a number of initiatives to promote investment in the energy industry in Alberta. Activities are undertaken to inform interested parties about the nature and size of energy resources in the province, the nature of the fiscal regimes in place, the advantages of locating in Alberta, and the stability of the investment and political climate within Alberta. Promotional efforts focus on the whole spectrum of the energy industry including coal, electricity, petroleum and the petroleum service sector. The department does not promote the interests of particular corporations or individuals.

The department was active in the Independent Petroleum Association of Canada's investment symposium in June 1990. It presented information on the energy industry, energy resources, and the fiscal regimes of the province.

In April 1990, the department assigned a senior staff member to the Alberta Government's office in Tokyo for a two-year period. The purpose of the assignment was to develop increased investment in Alberta's oil, gas, heavy oil and coal industries, to develop increased market opportunities for Alberta's energy resources, and to identify other opportunities for Alberta's energy sector.

Trade

On February 5, 1991, the Government of Canada announced Canada's participation in a trilateral free trade agreement (North American Free Trade Agreement) with the U.S. and Mexico. As a result, the department had active representation on committees dealing with trade policy to establish Alberta's priorities in the energy sector in the negotiations. Through participation on these committees, the department will provide input to the federal government regarding the agreement.



Energy Efficiency & the Environment

Background

The environmental concerns that influenced the energy agenda in 1988-89 continued to grow in 1990-91. Energy-related environmental concerns stem from potential impacts from the development, production and consumption of energy resources. Alberta Energy has addressed these concerns with a focus on integration of resource development and environmental protection and with management of atmospheric emissions associated with energy production and use.

Integrated Resource Management

The department subscribes to the philosophy of integrated resource management to ensure that land and resource use decisions are made in the broader context of multiple land use. This presents the department with the opportunity to review land and resource management policies, programs and objectives of participating government agencies. This ensures that programs are consistent with the government's overall plan for the management of Alberta's mineral resources. The department reciprocates by sharing information on energy or mineral resource management initiatives with these agencies.

Integrated resource management is achieved by the department through a number of methods, the most formal of which is participation in the province's Integrated Resource Planning program. This is a comprehensive and collective approach to decision-making on the use of public land and resources. Information about resources and land use activities is considered in the process, as are the views of interested government agencies, municipal authorities, interest groups and the public.

The Mineral Resources Division coordinates the department's participation in the program. In the 1990-91 fiscal year, the division worked to maintain opportunities for industry to gain access to explore for and develop the mineral resources in each planning area. During the year, progress was made on 16 integrated resource plans (IRPs), four of which were approved for implementation. As well, the division participated in two major plan reviews which began in 1991. In all, 26 IRPs have been approved by cabinet.

The department also participates in integrated resource management through a number of interdepartmental referral processes coordinated by the Mineral Resources Division. During the year, 180 referrals were received for review and comment.

These referrals included: 2 reclassifications of land pursuant to current coal policy; 6 preliminary disclosures to government by proponents of major energy or mineral development proposals; 28 Environmental Impact Assessments; 50 applications for surface dispositions for commercial tourism and recreation leases; 30 applications for protective notations for lands designated for uses such as future Parks, Ecological Reserves or Wilderness and Natural Areas; 3 industrial development applications; 10 land transfer requests; and 51 miscellaneous applications. Each referral was reviewed for its impact on access for existing or proposed mineral development activity.

The Mineral Resources Division continues to be involved in the Prairie Conservation Action Plan, designed to conserve the biological diversity found on the Canadian prairies. Participation by the division ensures that appropriate consideration is given to the value of energy and mineral potential in areas being proposed for protection.

The Mineral Resources Division also participated in two regional integrated decisions (RIDs), which are similar to integrated resource plans but with a local focus. Both RIDs were designed to resolve oil and gas development access issues in environmentally-sensitive and ecologically-significant areas.

Energy and the Environment

Alberta Energy's Environmental Affairs Branch was formed in October 1990 because of increasing concerns in Canada and around the world about the environmental impacts of energy production and use. This branch assists the department in reviewing and developing energy-related environmental policy. This means ensuring that economic issues are considered in all energy-related environmental decisions.

Clean Air Strategy for Alberta

The Clean Air Strategy for Alberta consultation program was launched on March 15, 1990, in response to continuing national and international concerns about the impact of fossil fuels on global warming, acid deposition and smog. The program, a joint initiative between Alberta Energy and Alberta Environment, has three objectives:

- To help identify and clarify the most important issues that need to be addressed in developing a clean air strategy
- To develop practical and achievable actions that can be taken by consumers and producers to reduce emissions
- To develop policy and program recommendations to present to the Alberta Government.

A 13-member Advisory Group was established to help ensure broad-based input from Albertans and an effective consultative process. The Advisory Group was comprised of senior representatives from environmental groups, local governments, public health authorities, the native community, the energy, transportation, chemical and utilities industries, and provincial government departments.

An issues and options workshop was held in September 1990. Workshop participants included representatives of the various stakeholder groups. Participants identified issues that need to be addressed, areas of uncertainty, short- and long-term priorities, options for action, and areas where more information and research are needed.

Regional sessions were held in eight Alberta centres in the fall of 1990 and written submissions were collected. Schools were invited to participate in the consultation program. Background information was compiled on topics such as the definition of clean air, full-cost accounting and coordination of science and technology. A comprehensive literature review on the greenhouse effect and global warming was also conducted. A final report is to be submitted to the ministers of Energy and Environment in the fall of 1991.

National Action Strategy on Global Warming

The department was actively involved in a federal-provincial-territorial task force to develop a national action strategy on global warming. The strategy is intended to establish a direction and process for addressing the threat of global warming. This includes a national greenhouse gas reduction target. The strategy serves as an umbrella document potentially leading toward a series of bilateral agreements with provinces and territories. The Clean Air Strategy for Alberta will form the basis for future Alberta initiatives in support of a National Action Strategy.

International Negotiating Committee on Climate Change

In preparation for the 1992 United Nations Conference on Environment and Development, the UN established an intergovernmental negotiating committee to develop a framework convention on climate change, which is to be signed at the conference. It was expected that this framework convention would call for global reductions in carbon dioxide and other greenhouse gases over a specific time period. Because greenhouse gas emissions have been closely linked with fossil fuel production and use, Alberta Energy has played an active role in advising the federal government on this issue.

The first meeting of the Intergovernmental Negotiating Committee took place February 4-14, 1991, in Washington, D.C., and focused mainly on matters of process. Statements on greenhouse gases were made by 68 countries at this meeting. Sharp differences were evident between developed and developing countries, particularly with regard to the nature of commitments, financial assistance and transfer of technology.

At the Washington meeting, the Canadian negotiating team included an Alberta Department of Energy representative who participated on behalf of the Provincial-Territorial Advisory Committee.

Energy Ministers' Meeting in Kananaskis

Federal, provincial and territorial ministers of energy held a special one-day meeting in Kananaskis, Alberta on April 2, 1990 to discuss environmental issues related to energy production and consumption. The meeting was organized in response to a request by Energy Minister Rick Orman during discussions in Toronto the previous August dealing with a report of the Task Force on Energy and the Environment.

The meeting in Kananaskis was a follow-up to the meeting in Toronto and resulted in consensus being reached on the following :

- That discussions on climate change and fossil fuels must go beyond a focus on carbon dioxide to include all energy-related emissions, to permit the development of an effective, rational, comprehensive and coordinated strategy for action
- That reductions in greenhouse gas emissions can be best achieved through consensus building and cooperation among energy producers, consumers, environmental groups and other stakeholders, through public consultation
- That joint action and discussions between energy and environment departments across the country are needed as work progresses on the development of a comprehensive national action strategy on global warming proposed by the Canadian Council of Ministers of the Environment
- That significant reductions in carbon dioxide can be achieved through measures which are desirable on their own merits: and that achieving a 20-per-cent reduction of 1988 levels of carbon dioxide emissions by 2005 would cause significant changes in lifestyle
- That emission targets should be developed through international negotiations
- That Canada should be actively involved in international processes designed to achieve meaningful international agreement on collective responses to climate change and air quality.

Western Accord on Environmental Cooperation

On February 20, 1991, energy, natural resource and environment ministers of the four western provinces and two territories signed the Western Accord on Environmental Cooperation in Regina. This accord will ensure that environmental issues with a regional as well as a national focus can be dealt with in a consistent and appropriate manner. Considering the urgency of air quality issues, the ministers directed the formation of a western provincial-territorial air quality issues coordinating committee, which is to be composed of representatives of energy and environment departments in the four western provinces, the Yukon, and the Northwest Territories. The Alberta Department of Energy has a representative on this committee.

Energy Modelling Forum

The department is participating in the Stanford University Energy Modelling Forum, where energy experts, analysts and policy-makers meet to improve their understanding of critical energy problems. The current project, EMF-12, is studying global climate change and energy sector impacts of greenhouse gas control strategies. The EMF 12 Working Group held its initial meeting in September 1990 and is expected to have a draft final report available by May 1992, in time for the United Nations Conference on Environment and Development.

Energy Efficiency

The Energy Efficiency Branch was reorganized in October 1990. A policy section was formed and the programs were realigned to focus on information services, technical services and education services. The branch continues to promote the wise and efficient use of Alberta's energy resources.

Information Services

In 1990-91, the Energy Matters telephone enquiry service, operated by the Energy Efficiency Branch, received more than 3,800 calls on home energy efficiency questions. More than 179,000 copies of publications were distributed through building supply and hardware stores and other outlets.

Technical Services

Energy audits conducted on request from business, industry and institutions identify potential energy-efficiency improvements through on-site analysis. Energy Efficiency Branch staff use two computer-equipped energy buses to monitor energy use, determine steps to reduce energy cost, and make recommendations. In the 1990-91 fiscal year, 102 buildings of various types were visited. Potential annual energy cost reductions of \$3.5 million (14.7 per cent of total annual costs) were identified, involving easily implemented measures. During its 10-year existence, this free service has audited approximately 2,200 buildings throughout Alberta.

A transportation energy audit program has been offered to vehicle fleet operators. During the past fiscal year, seven such audits were completed. Potential annual fuel cost reductions of \$275,000 (28 per cent of total annual costs) were identified. To date, 21 fleets of various types have been analyzed, identifying over \$500,000 in potential annual savings. During the year, approximately 56,000 Alberta drivers received fuel economy calculators and other materials to help monitor and improve fuel efficiency.

Education Services

More than 18,500 Alberta students received energy-saving messages in their classrooms through dramatized presentations by department staff. Alberta educators received instructional and curriculum resources to help them teach the importance of energy efficiency to more than 86,500 students.

Policy Review

The Energy Efficiency Branch's Policy Section was established late in the 1990-91 fiscal year. During this period, three studies were undertaken for the Clean Air Strategy for Alberta (CASA). These studies entailed extensive data gathering from across North America. The Policy Section undertook energy and cost analyses of 58 of the 94 energy efficiency measures initially identified by CASA.

The Policy Section also participated in the development of an energy saving program within government called Energywise. The program, announced in January 1991, supplements the energy conservation activities of the Energy Efficiency Branch. It emphasizes fuel efficiency in the provincial public service as well as activities targeted to large employers and commercial fleet operators.

Alternative Energy

Southwest Alberta Renewable Energy Initiative

In 1989, the Southwest Alberta Renewable Energy Initiative (SWAREI) was created to encourage development of the abundant wind and solar energy resources in the Pincher Creek-Crowsnest Pass area, and to help diversify the economy of the region.

SWAREI is managed by the Alberta Office of Renewable Energy Technology (AORET) and is funded through the Alberta Heritage Savings Trust Fund. It is the largest renewable energy program in Western Canada. SWAREI offers three types of assistance: financial assistance; power allocation to the province's electrical grid; and information dissemination.

In 1990, a renewable energy information centre was established in Pincher Creek, and a call for proposals was initiated for development and demonstration projects that might receive partial government funding during 1991. In response to this, AORET received 37 expressions of interest; 19 resulted in the submission of detailed project proposals. An independent six-person board of directors selected and approved support for 8 projects to be implemented in fiscal year 1991-92.



Finance & Administration

This group provides centralized services for a variety of financial and administrative functions. Finance and Administration organization is unique in that it serves two major departments within the Alberta Government: Energy, and Forestry, Lands and Wildlife.

Automated Information Systems

This unit provides technical expertise and support in working with automated data and office automation systems. During the 1990-91 fiscal year, it assisted various divisions in assuming direct control over their non-corporate computer systems. The unit also continued to manage the growth of the Integrated Office System.

The unit furnished the technical expertise to support and ensure the successful beginning of a major systems initiative to replace the outdated accounts receivables computer system. Development continued on the departmental financial information system through provision of a budget tracking facility to regional offices. A major upgrade to the departmental file tracking system was also implemented.

The deregulated gas component of the Mineral Revenues System (MRS) was completed, and development of a shared accounts management component was initiated. The MRS was reviewed and recommendations were made that will be used to form the basis of an MRS technical development strategy for the next several years.

Work began on replacing the outdated accounts receivable system, and the departmental file tracking system was upgraded. In addition, development of the Oil and Gas Sales System was started.

Financial Services

Financial Services is responsible for the Accounts Payable and Accounts Receivable functions, and administers the department-wide forecast and expenditure monitoring system. This system enables divisions to monitor budget forecasts and report their ongoing financial status. In addition, the Self Pay Purchase Order system was fully implemented.

The project definition and proposal for solutions phase was completed as part of the decision to replace the Main Accounts Receivable System with the Corporate Accounting and Reporting System. Replacement will be finished by March 1993.

The imposition of the federal Goods and Services Tax generated considerable activity. Operating manuals and various financial forms and procedures were revised to accommodate the required changes.

Human Resources

Human Resources provides services related to recruitment, classification, wage and salary administration, employee relations, staff and organizational development, human resource information management, security and occupational health and safety. Over the past year, Human Resources provided technical expertise to support the reorganization of some branches. This enabled them to carry out the department's mandate more effectively and respond better to increased operational requirements within tight budget constraints.

The coordination of the departmental Women's Program, established as part of the provincial "Alberta Plan for Action for Women," is now part of the ongoing responsibility of Human Resources.

Internal Audit

Internal Audit examines the financial activities of the department to ensure that internal accounting and operating controls are functioning properly. Emphasis is placed on reviewing techniques used by management to evaluate program efficiency and effectiveness, to make sure that results are consistent with objectives.

During the past year, Internal Audit provided management with independent assessments of the adequacy of controls in existing computer-based systems, including microcomputer systems. Input was also provided during the development phase of major corporate systems. Significant recommendations from previous audits continued to be reviewed to ensure that corrective action had been taken.

General Services

General Services is responsible for providing a wide range of administrative, information and accommodation services to the department.

As part of the departmental Long Range Accommodation Plan, several operating areas were consolidated into fewer, more strategically positioned locations. In addition, initiatives were taken to implement the Land Status Automated System (LSAS) in various government departments.

The Crown Land Searches unit was transferred to the Energy/Forestry, Lands and Wildlife Information Centre in Edmonton to consolidate service to the public. This service is already provided at the Calgary Information Centre.

The Records Management unit made major improvements to the File Room On Line Information Control System. Through the creation of a local area network, this system has provided greater flexibility, better integration and a one-window access to all file information.



Appendix

Syncrude Project

The Syncrude Oil Sands Project is the largest of its type in the world. The Province of Alberta, through the Alberta Heritage Savings Trust Fund, holds a 16.74-per-cent equity interest in the project. Alberta also receives a Joint Venture Payment equal to 50 per cent of the project's deemed net profits in lieu of a royalty. To date, Alberta has received over \$1 billion in Joint Venture Payments from Syncrude. The Syncrude project also directly provides over 4,500 permanent and 1,000 contractor jobs.

Over the past several years, major productivity and efficiency gains have been achieved at the Syncrude Project. Operating costs have been significantly reduced while production has been increased by well over 10 per cent, in part through the Capacity Addition Program.

1990-91 Highlights

In the fiscal year 1990-91, synthetic crude oil production reached a record level of approximately 170,000 barrels per day (on average). In February 1991, Syncrude also reached a production milestone of 500 million barrels of synthetic crude oil. Production from Syncrude represented approximately 13 per cent of Alberta's annual crude oil and equivalent production.

On March 25, 1991 the Alberta Government announced approval in principle of an agreement with Syncrude Canada Ltd. for custom processing of bitumen from other leases. The agreement will allow Syncrude to use surplus upgrading capacity to produce additional synthetic crude oil from bitumen feedstock purchased from outside sources. The agreement will be in effect for three years and will enable Syncrude to process up to five million barrels of purchased bitumen per year. The marketability of bitumen will be enhanced by this agreement.

The Alberta Heritage Saving Trust Fund's portion of Syncrude's profit amounted to \$82.1 million in 1990-91, almost four times as high as the previous year. Realized prices averaged \$26.60 per barrel in 1990-91, an increase of \$4 per barrel from the previous year. This was due in part to the events in the Persian Gulf. In total, the Heritage Saving Trust Fund has received income of \$517.7 million from Syncrude since production began in 1978.

OSLO Commercial Project

Background

OSLO is an acronym for Other Six Leases Operation, referring to the other six leases owned by the original Syncrude members. The current participants and their equity shares are:

25%	Esso Resources Canada Limited
20%	Gulf Canada Resources Limited
20%	Canadian Occidental Petroleum Ltd.
15%	Petro-Canada
10%	PanCanadian Petroleum Limited
10%	Alberta Oil Sands Equity.

The 1990-91 period saw continuation of the design work on the OSLO Commercial Project. This led to the split of the mining/extraction facility from the upgrader. It was proposed that the OSLO mining operation be located 64 kilometres northeast of Fort McMurray, across the Athabasca River from the Syncrude site, and that the proposed bitumen upgrader, connected to the mine by pipeline, be located at Redwater, about 60 kilometres northeast of Edmonton.

The proposed lease on which the mine will be situated has enough reserves to produce up to 200,000 barrels of synthetic crude oil per day for 50 years. Current plans would see the project produce approximately 80,000 barrels per day of synthetic crude oil with initial capital costs of about \$5 billion.

A Statement of Principles covering the fiscal arrangements for the project was signed by the OSLO Consortium and the governments of Alberta and Canada in September 1988. Work continued on the preparation of the detailed agreements until February 1990, when the federal government withdrew its funding commitments to the project.

1990-91 Highlights

After the federal government withdrew its commitment to fund construction of the project, an agreement was reached for it to provide up to \$45.5 million toward engineering studies already under way. In 1990-91, the Alberta Government signed the OSLO Pre-Appropriation Agreement to provide up to \$46.8 million for this initial design phase of the OSLO project. Negotiations continued regarding potential fiscal terms for the project.

During 1990-91, work progressed on detailed engineering studies necessary to develop a commercial project. These studies were to be completed by December 31, 1991. A decision on whether to proceed with construction of the project was expected in the summer of 1992.

Lloydminster Bi-Provincial Upgrader

The Lloydminster Bi-Provincial Upgrader will have the capacity to produce 46,000 barrels of synthetic crude oil per day from heavy oil and bitumen reserves in Alberta and Saskatchewan. This synthetic crude oil production will help Alberta continue as a reliable supplier of high-quality light crude oil to its customers in Canada and abroad. Husky Oil Ltd. is managing the construction of this joint venture on behalf of itself and the governments of Alberta, Saskatchewan and Canada.

Alberta holds a 24.1% interest in the project.

1990-91 Highlights

By March 31, 1991, construction of the project was 27 per cent complete, with peak construction planned for the summer of 1991. The construction schedule has been accelerated to allow partial start-up by mid-1992, with remaining operations coming on stream in November 1992.

The construction of the upgrader is providing significant benefits, including the expected creation of 5,800 person-years of employment with a further 330 permanent positions required for its operation.

Investment in 1990-91 totalled \$109 million. Alberta's cumulative investment at March 31, 1991 was \$139 million.



Financial Statements

Alberta Energy
Statement of Revenue
For the Year Ended March 31, 1991
(Unaudited)

	1990/91 (\$000)	1989/90 (\$000) (Restated) ¹
Royalties ²		
Crude Oil	\$ 1,325,194	\$ 1,125,967
Natural Gas and By-products	1,080,352	960,586
Synthetic Crude Oil & Bitumen	39,013	27,720
Coal	14,671	16,511
Other	4,811	4,730
	2,464,041	2,135,514
Crown Sales, Oil and Natural Gas Agreements	415,596	389,082
Rentals and Fees		
Oil and Natural Gas, and Synthetic Oil	93,897	72,443
Coal and Other	3,752	3,118
	97,649	75,561
Mineral Taxes	76,053	68,832
Expenditure Recoveries	1,155	614
Miscellaneous	642	485
Gross Revenue	3,055,136	2,670,088
Add (deduct) Incentive Programs		
Exploratory Drilling	501	(272)
Geophysical	(1)	(92)
Geophysical Assistance	0	(11)
	500	(375)
Net Revenue	\$3,055,636	\$ 2,669,713

Prepared by Revenue Branch
Financial Services Division
August 30, 1991

Alberta Energy
Statement of Expenditures ³
For the Year Ended March 31, 1991
(Unaudited)

	1990/91 (\$000)	1989/90 (\$000) (Restated) ¹
Finance and Administration Services Division	\$ 6,553	\$ 6,430
Other Divisions		
Mineral Resources	8,154	6,388
Mineral Revenues	13,622	13,090
Markets, Supply and Industry Analysis	2,734	3,082
Sustainable Energy Development	9,000	11,374
	33,510	33,934
Executive Offices	1,305	1,053
Special Warrants and Special Programs		
Assistance for Oil Sands Projects	4,994	10,550
Investment in Smoky River Coal Limited	—	4,300
	4,994	14,850
Total Expenditures	\$46,362	\$ 56,267

Notes to the Financial Statements
For the Year Ended March 31, 1991

Note 1 – Comparative Figures

The 1989/90 figures have been restated where necessary to conform to the 1990/91 presentation.

Note 2 – Statement of Revenue

The reporting format of royalties has been changed to separate synthetic from crude oil and coal from others to make it comparable to the Public Accounts.

Note 3 – Statement of Expenditures

Alberta Oil Sands Equity, Alberta Oil Sands Technology and Research Authority, Alberta Petroleum Marketing Commission, Alberta Petroleum Incentives Program, Alberta Electric Energy Marketing, and Alberta Public Utilities Regulation are not included in the Statement of Expenditures.

Prepared by Revenue Branch
Financial Services Division
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